



A Logic Model for Planning, Implementing, and Evaluating a Student-Run Free Clinic

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Abstract

Student-run free clinics (SRFCs) are an important part of the American healthcare system, providing free services to many individuals in need. Patients report improvements after care in an SRFC, and students develop skills requisite for practice. Current literature describes outcomes at SRFCs for patients and students but fails to provide a solid model to guide planning, implementation, and evaluation of SRFCs' success. This paper presents the SRFC logic model, a contextually based model that is useful throughout the life of an SRFC. The SRFC logic model utilizes a backward design process for planning a new SRFC. The same five components examined in the planning process are performed in reverse order during the implementation and evaluation phases. The planning phase begins by identifying the impact that the SRFC hopes to make, followed by defining the measurable outcomes the SRFC expects to achieve. Outputs are projected to examine the reach of the SRFC. Specific activities to produce the desired output and outcomes are defined. Lastly, the inputs needed to complete the activities are identified. Implementation of the SRFC addresses the same components in a forward direction. Evaluation is performed iteratively, allowing for adjustments to ensure that the SRFC is achieving its targeted outcomes. The logic model described in this paper can be used across healthcare disciplines and settings to plan, implement, and evaluate an SRFC and to demonstrate its significance to all stakeholders.

Background

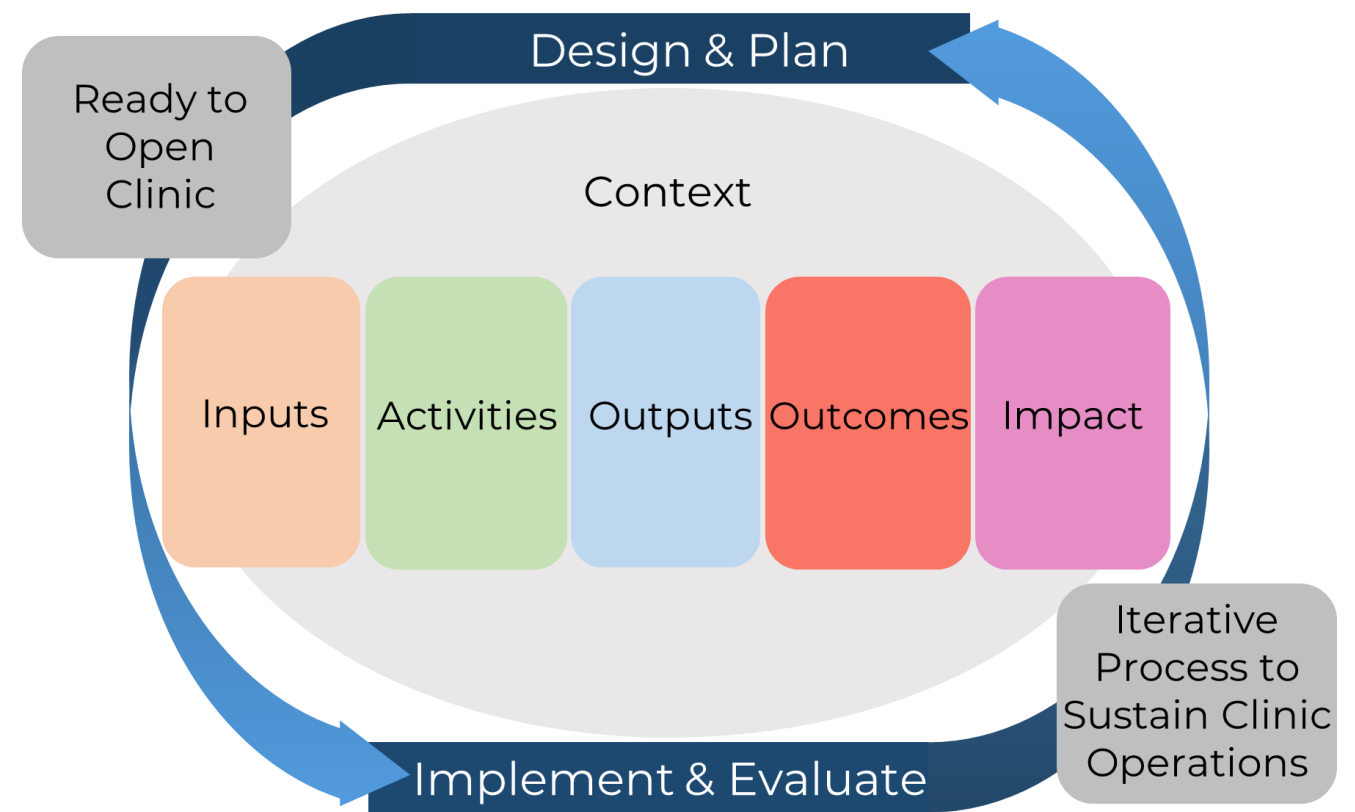
Student-run free clinics (SRFCs) provide pro bono healthcare to individuals who may not otherwise be able to afford treatment.¹ SRFCs provide access for thousands of individuals who are uninsured or underinsured.^{2,3} A wide-range of SRFCs have been described in the literature, including those providing primary care, behavioral health, dental care, pharmacy services, and occupational and physical therapy.²⁻⁷ Many of these SRFCs are affiliated with medical and healthcare teaching centers, with over 75% of American medical schools reporting operation of some form of an SRFC in 2014.⁶

Literature surrounding SRFCs continues to grow, with clinics publishing their operating procedures and research supporting positive outcomes for patients and students.⁷⁻¹¹ Several arti-

cles provide tips for developing an SRFC or highlight operating procedures; however, many do not provide a detailed blueprint for the development of an SRFC or define methods to delineate and achieve outcomes.¹²⁻¹⁴ Since the goals for SRFCs are diverse, a checklist developed for one SRFC may have little applicability to another due to differences in discipline, targeted population, or delivery of care. As a result, students and faculty planning an SRFC are left to integrate their ideas with those published in various resources, which may result in an SRFC that is poorly aligned with its intended objectives.

This paper presents an SRFC logic model that offers organization for planning, implementing, and evaluating an SRFC with utility across disciplines and settings (Figure 1). This model is based on the *Logic Model Development Guide* by the Kellogg Foundation¹⁵ along with the *Precede-*

Figure 1. The Student-Run Free Clinic (SRFC) Logic Model



The process begins by identifying the long-term impact of the SRFC, measurable outcomes and outputs that can demonstrate progress toward the ultimate impact, activities performed, and inputs needed to succeed. The context exerts an overarching influence on each component of the model and influences the success of the SRFC. The cyclical nature of the model provides opportunity for routine evaluation and iterative changes.

Proceed Model developed by Green and Kreuter, a community program planning model that includes identifying priorities and objectives, implementing activities, and evaluating these objectives.¹⁶ The SRFC logic model begins and ends at the impact; but this model is a cycle, emphasizing that modifications are important and necessary to ensure that the SRFC is meeting identified needs and long-range goals. This paper examines each section of the logic model individually and demonstrates how these components link together using examples from peer-reviewed literature.

Logic Models

Logic models are tools that provide a systematic way to present the relationships among available resources, planned activities, and the intended results.¹⁵ These models demonstrate to internal and external stakeholders how a specific

program operates and how it will bring about desired change.¹⁷⁻¹⁹ Logic models have been used to develop and describe diverse programs such as community wellness, community outreach, and service learning initiatives.^{17,20-22} Components of logic models include inputs (i.e., resources), activities, outputs, outcomes, and impact, and logic models emphasize how each component influences the next.¹⁵ It is of utmost importance that SRFCs address each of these components in a prescribed order; working from right to left when designing and planning, and left to right when implementing and evaluating the SRFC. Planning begins by defining the ultimate impact that the SRFC aims to achieve. Articulating the intended long-term result at the beginning is common when designing health promotion programs,^{16,23} business plans,²⁴ and educational curricula.²⁵ This process, known as backward design, allows developers to communicate *how* the SRFC will confront challenges identified in the needs

assessment and *what* the clinic ultimately hopes to achieve.¹⁶ Although we present this model from the perspective of a developing clinic, existing SRFCs can begin using the model at their current operational phase. Examples of existing student clinics will be used to describe each step in the model.

Needs Assessment

A needs assessment is the foundation for any community program, including an SRFC. Free clinics have been conducting needs assessments for many years, including those driven by students.²⁶ Needs assessments can be done in many ways,^{23,26-28} the methodology of which is beyond the scope of this paper. It is critical to identify the key stakeholders, their perspectives regarding the problem, the solutions currently in place and where they fall short, any causative factors and possible solutions, the existing resources, and potential facilitators or barriers within the community.^{23,26-28} The results from an existing needs assessment that can inform a developing SRFC may already exist, reducing the time developers need to engage in this step. Examples in the literature include a needs assessment by one university that identified an unmet physical therapy need in its community,²⁹ and a needs assessment conducted at another university found that students lacked competence in delivery of patient care.⁸ Current SRFCs may need to reevaluate the community's needs to ensure they are providing services required by the targeted population rather than those that organizers perceive to be the need or what the need was in prior years.^{26,28}

Understanding the Context of the SRFC

The context is the set of factors in the environment that influence the target patient population, student participants, academic institution, or community partners. The context includes the economic, political, social-cultural, physical, and technological factors throughout the life of the clinic (Figure 2).^{15,19,20,30-32} These external forces, outside the clinic's control, can support or impede the clinic's success.^{15,32,33} As depicted in Figure 1, the context influences all components of the SRFC.

An impoverished economic context of a community and its limited healthcare access is often the impetus for opening an SRFC. Many clinics are in areas with a higher-than-average concentration of people who are uninsured^{2-4,8,10,29,34} or near a safety-net medical center.³⁵ External funding sources for the SRFC or its own ability to raise capital can contribute to the economic context.

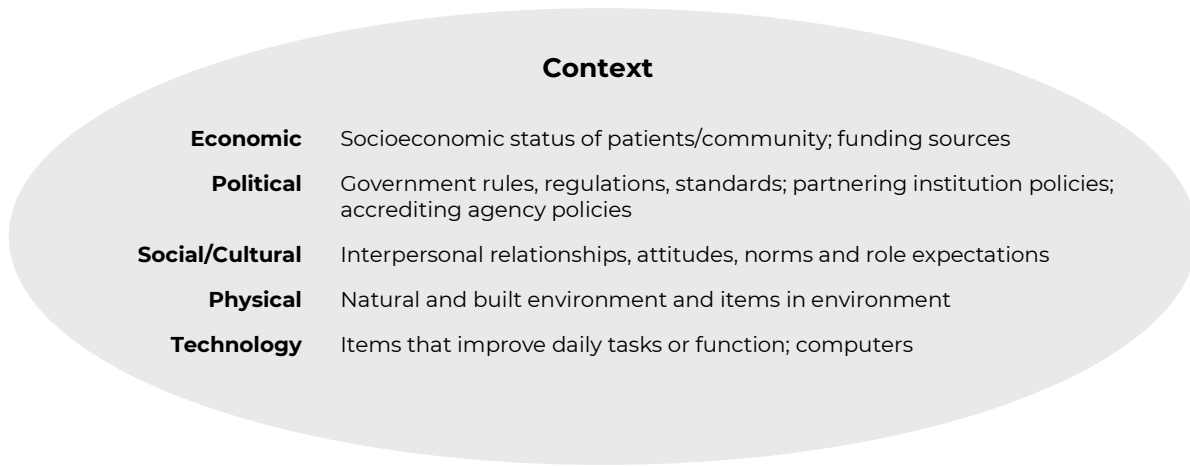
The political context can be a facilitator or barrier to a clinic's success.³⁰ For example, in states without Medicaid expansion, more individuals are living without adequate health insurance³⁶ due to their inability to afford other forms of coverage. This deficit in access to healthcare supports the need for an SRFC. In addition to government policies, the academic institution, partnering agencies, or accrediting agencies' policies will affect the SRFC. For example, some universities use the SRFC to promote interdisciplinary education,^{4,5} facilitating the opening of a new SRFC.

The social and cultural context includes attitudes and role expectations of the participants.^{30,37,38} A positive attitude regarding volunteerism is helpful in an SRFC that relies on clinician volunteers for supervision.^{8,39,40} Cultural and social norms of patients are also important to consider. A patient population may have difficulty relating to healthcare providers who do not look or speak like them.⁴¹ Methods to decrease racial barriers and improve patient-provider relationships must be considered.⁴¹ Other SRFCs may find that safety-net health programs are available in their community, but targeted patients have low health literacy due to education or advancing age, which can limit the patients' access to care.⁴²

The physical context can support or hinder the operations of the SRFC.^{30,43} For example, the authors of one article perceived the small available clinic space as a barrier when they prepared to introduce physical therapy into a multi-disciplinary clinic.⁴ Another study echoed the importance of the physical context for patient confidentiality and privacy.¹² The geographic location of the SRFC can facilitate participation when it is close to the target population, public transportation is available, and the neighborhood is safe.

The technological context supports day-to-day operations of the SRFC.⁴⁴ Some SRFCs use electronic medical records,⁴⁵ necessitating computers, internet access, secure servers, and software.

Figure 2. Contextual Factors of an SRFC



The technological context also includes evaluation and intervention equipment needed for each discipline in the SRFC.

The context may change after opening an SRFC, affecting any or all components of clinic operations represented in the SRFC logic model. The economic context may change, limiting funding for purchasing equipment (inputs) or conducting needed procedures (activities). The physical context changes if the SRFC moves to a new location, which may be larger or smaller altering the available space for the equipment or procedures. The political context changes if the state elects to expand Medicaid, which may significantly decrease the number of patients attending the SRFC. The cyclical feature of the SRFC logic model (Figure 1) supports making iterative modifications to any component based on these changes.

Impact

The impact of the SRFC is the intended “social, economic, civic, and environmental change”²³ of the clinic, its patients, or the community.¹⁵ As represented by its location at the beginning of the design and plan arrow in Figure 1, impact is the first logic model component addressed during the planning process. Backward design promotes starting broad and moving to narrower issues.^{16,23-25} Impacts are the broad, long-term, and wide-reaching objectives that the SRFC hopes to contribute to in the community. Often, other

Figure 3. Examples of SRFC Impacts



programs, services, or even other SRFCs share a common impact. For example, several SRFCs describe their impact as decreasing health disparities within local communities by increasing healthcare access.^{2,4} However, social services may also have programming to decrease local health disparities. Another example of an impact found in the literature is to increase healthcare providers’ commitment to underserved populations after leaving school.^{2,46} Participation in an SRFC plays an influential role on students’ future career choice, but a service learning trip may also have that same intended impact on students. Additional examples are listed in Figure 3.

Outcomes

The outcomes are the measurable changes in individuals' or groups' knowledge, attitudes, and behaviors.^{15,23} Outcomes reflect the noticeable and detectable progress with participants in the SRFC, including both the patients receiving care and the students providing care. In Figure 1, this is connected to the broad impacts that were initially identified. Outcomes are quantifiable and are ways to measure smaller parts of the impact¹⁵ and are distinguished from the impact or impacts, which are larger in scope.^{15,23} In addition to using the already identified impacts, a new SRFC would examine the needs assessment and the context to help develop measurable outcomes with data collection beginning immediately following opening. For example, if the needs assessment determines students are ill-prepared to take a comprehensive patient history on their first clinical rotation, an outcome would be to improve student competency in this area, as measured by a standardized student clinical evaluation measure. Figure 4 provides additional examples of SRFC outcomes.⁴⁷

Some established SRFCs have had difficulty evaluating their outcomes, often because the outcomes are not identified during planning or are not specific and measurable. An SRFC in Philadelphia assumed that alumni would become primary care physicians as a result of participation in the SRFC; however, they did not collect specific data to support this assumption.² Without targeted outcomes, SRFCs have difficulty claiming their services are effective. In the case of one existing SRFC in California, data were collected on students' attitudes and knowledge toward underserved populations nearly immediately following student participation,⁴⁸ reporting that 90% of its students have participated in the SRFC since 1997.⁴⁸⁻⁵⁰ However, measurable outcomes on student perceptions on educational value and improvements in patient's mental health were not collected until several years later.^{49,50} Using this logic model for constant review and revision can support an SRFC's value by demonstrating measurable improvements in participants' outcomes.

Tracking outcomes for patients may be challenging, especially if they attend clinic for only a

Figure 4. Examples of SRFC Outcomes

Outcomes	
Outcome	Example
Specific improvements in student clinical knowledge, attitudes toward treating underserved populations, and behaviors toward patients and other disciplines	Improved ability to take comprehensive patient history
Specific improvements in patient health	Decreased blood pressure measurements
Specific improvements in patient behaviors, knowledge, and attitudes toward diagnosis/health	Patient able to verbalize how to maintain healthy weight
Other goals of stakeholders including supporting institution or agency	Adding to faculty lines of research

few visits. Patients may have transient housing or lack a permanent phone number, making long-term follow-up difficult. Students usually participate in the SRFC for one or more semesters and maintain communication after graduating, making long-term follow up easier. The current literature reflects this comparison, with many more established SRFCs reporting outcomes for students as compared to patients and clients.^{8,29,40,51-53} Despite the challenges, several SRFC have identified an impact on improving access to primary care and successfully evaluated specific patient outcomes, demonstrating that it is possible in this setting.^{49,53-55} For example, in one clinic, patients demonstrated a decrease in depressive symptom severity following a behavioral health intervention by students.⁵³ In another example, patients demonstrated a statistically significant decrease in their low density lipoprotein at long-term follow up when treated at one of three SRFCs included in the study.⁵⁴ A current SRFC that lacks a stated impact and outcomes related to patient health or student competence or would like to add or expand on current outcomes can use this iterative SRFC logic model to add outcomes to its processes to continue demonstrating its effectiveness.

Outputs

The next component to address in planning an SRFC is the outputs (Figure 1). Outputs include data on everyone the SRFC reaches and the size and scope of this reach.^{15,33} Contrasted with the outcomes, which are measurable changes in the stakeholders, outputs are information as a result of the delivery of the activities.¹⁵ For example, in order to improve patients' health management, the SRFC needs to know the number of patients who are actually being seen for this type of care. Like all of the other components, it is also influenced by the context, which may determine what types of diagnoses are seen, what disciplines are represented or could be represented, or types of committees that are needed. Figure 5 provides examples of SRFC outputs.

The following case illustrates how the outputs connect to the outcomes. One SRFC had a stated outcome to introduce the interdisciplinary healthcare team to the role of occupational therapy (OT) in primary care.⁵ It tracked the output of the number of interdisciplinary interactions of the OT students by their participation in committees and involvement in community events.⁵ In another example, an SRFC recorded its outputs including number of patients screened for depression, number displaying depressive symptoms, and number receiving intervention.⁴⁹ It used this information to demonstrate the long-term impact of improving mental healthcare to the uninsured in its community by showing the clinic reaches individuals who are in need of this specific type of healthcare intervention.⁴⁹ This retrospective study noted that screening for depression in this clinic at intake was successful with a small percentage receiving follow-up screens.⁴⁹

Activities

The activities include everything the clinic does to achieve data outputs and move toward its outcomes and ultimate impact.¹⁵ It is the next component addressed in the planning phase of the SRFC logic model (Figure 1). The outputs inform the activities, ensuring these activities provide the appropriate reach for each stakeholder.

Figure 6 provides examples of SRFC activities such as student training, clinical operations/lo-

Figure 5. Examples of SRFC Outputs

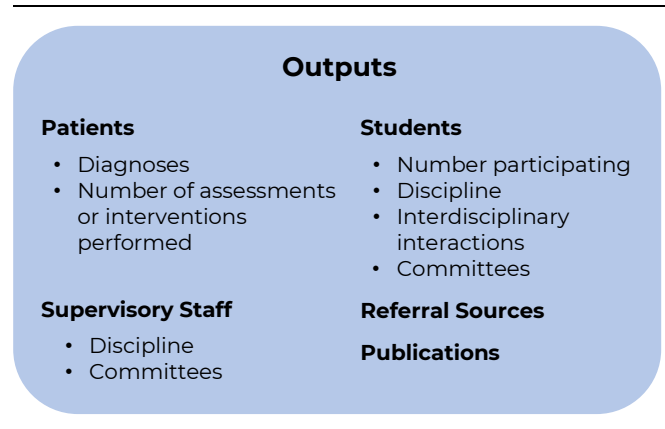
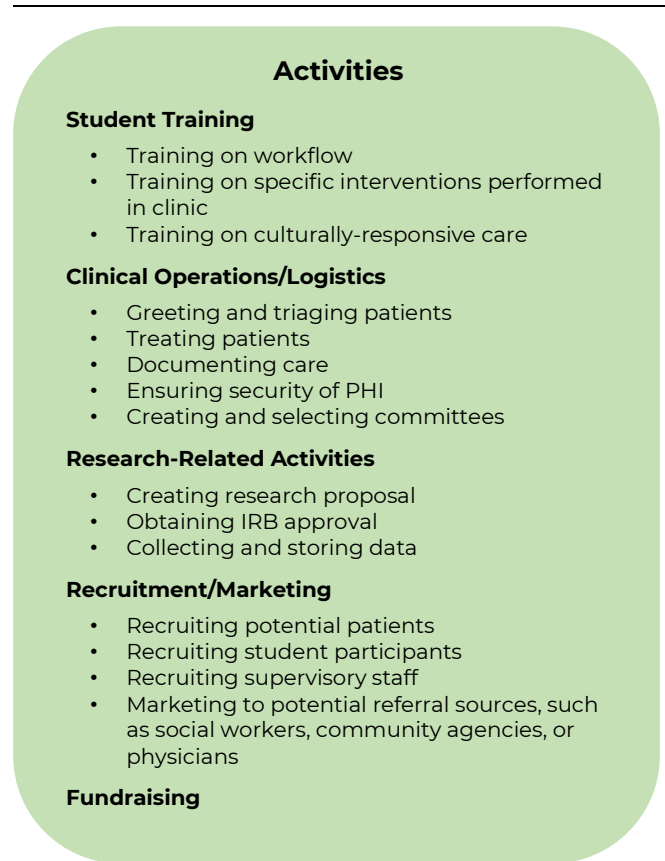


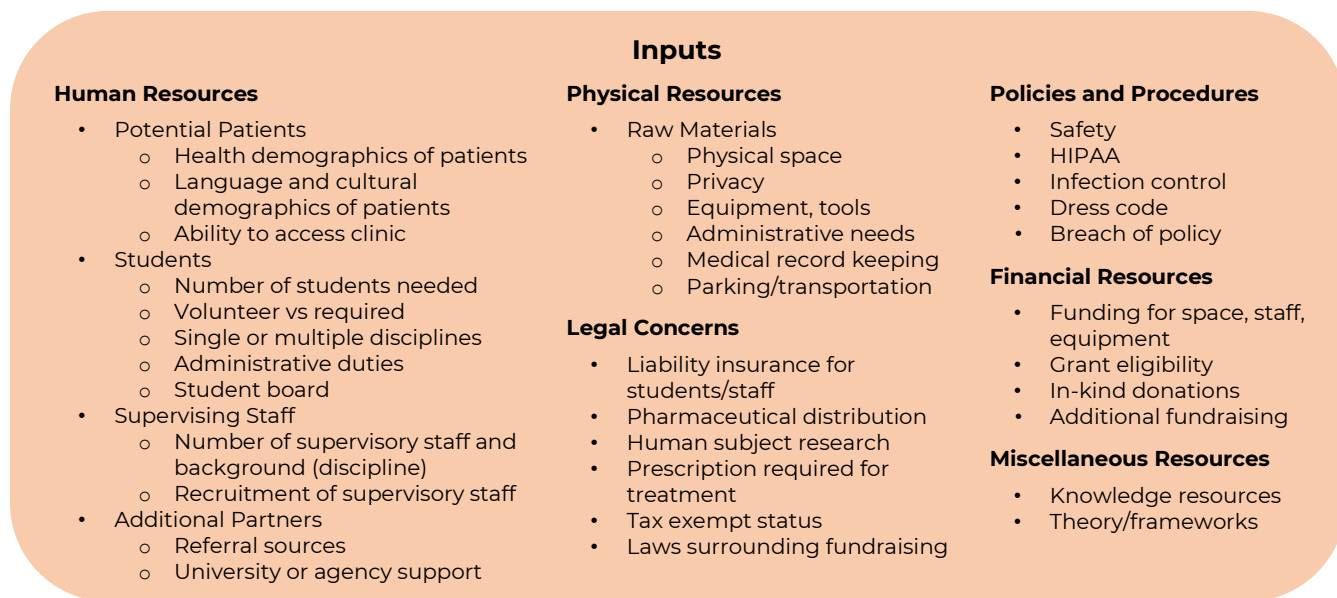
Figure 6. Examples of SRFC Activities



PHI: protected health information; IRB: institutional review board

gistics, research-related activities, recruitment/marketing, and fundraising. A free clinic in Germany offers an example of an activity through the development and implementation of its Peer Assisted Learning program to instruct medical students in patient conditions and assessment skills.⁵⁶ Another clinic provided a case of how the

Figure 7. Examples of SRFC Inputs



HIPAA: Health Insurance Portability Accountability Act

SRFC logic model links an activity, output, and outcome during the evaluation phase. Researchers wanted to demonstrate the outcome that their patients were benefitting from a depression intervention.⁵³ They developed an activity of collecting measurable depression screening scores at multiple time points. However, when looking at the output on the number of scores collected, researchers needed to exclude a large portion of the data due to improper documentation.⁵³ This clinic used an iterative process, like the one promoted in the SRFC logic model, to modify their activities to ensure that the number of screens obtained and recorded were as they intended. As a result, the clinic may generate better evidence that it is moving toward its intended outcome of improved depressive screen scores and the impact of improving mental health disparities.⁵³

As previously mentioned, the context of the SRFC also affects the activities section. For example, some SRFCs are subsidized through the university⁵⁷ or are grant funded⁸ and do not require fundraising activities, while others make fundraising a central activity to their clinic’s operations.⁴⁰ Careful examination of the context at the beginning of the planning stage of a new SRFC helps determine which activities are crucial and which are not necessary.

Inputs

The inputs are the resources required for the SRFC to achieve its outcomes and impact and is the last component addressed during the planning phase of the SRFC logic model (Figure 1). Inputs are vast and varying among clinics. Figure 7 highlights inputs in several areas, including human resources, physical resources, legal concerns, policies and procedures, financial resources, and miscellaneous resources. Inputs are dependent on the proposed activities and influenced by the context. For example, the demographics of patients, disciplines represented in the clinic, and legal requirements are all dependent of the SRFC’s context.

Inputs may also need to be modified iteratively in the logic model. During the evaluation phase, it may become apparent that the resources in place are not adequately supporting the outcomes and impact of the clinic. This was the case when one SRFC retrospectively studying colorectal screening realized that its electronic medical record (EMR) did not collect all the needed client demographics.⁵⁸ This clinic had to modify its EMR (input) to ensure it could achieve its objective of improving preventive care.

Long-term sustainability depends on main-

taining these inputs. Some SRFCs monitor their resources through boards or committees to divide the responsibility of acquiring, maintaining, and modifying the large number of resources needed to provide health services.^{2,5,40} One clinic used separate student and faculty boards; the students were responsible for scheduling and the faculty were responsible for forging relationships with referring physicians and securing financial support.⁴⁰ Another clinic used student committees for recruiting volunteers, fundraising, research, and procuring pharmaceuticals.²

The SRFC Logic Model is for the Life of the Clinic

With many new clinics opening each year, SRFCs are a growing part of healthcare education. This paper has moved through all of the components of designing and planning a new SRFC using the SRFC logic model. Use of this model allows for explicit description and transparency of the SRFC operations to internal and external stakeholders. The SRFC logic model uses a backward design process for planning a new clinic, emphasizing the importance of determining the long-term impact that the SRFC hopes to achieve, followed by defining the measurable outcomes, outputs, activities, and inputs. When implementing and evaluating the SRFC, movement occurs through the logic model in the traditional left-to-right manner. The SRFC logic model is an iterative cycle that continues to repeat indefinitely, promoting evaluation and implementation of improvements to continue progress toward long-term goals.

It is increasingly important to demonstrate the impact of healthcare delivery systems to a broad range of stakeholders in this outcome-driven, evidence-based marketplace, whether it is a fee-for-service clinic operated by licensed professionals or a free clinic run by student clinicians. The logic model described in this paper can be used across disciplines and settings to plan, implement, and evaluate an SRFC. Because of the iterative nature of the SRFC logic model, it can also be used by existing SRFCs. Use of the SRFC logic model is encouraged throughout SRFCs' existence to ensure long-term sustainability of the SRFC and to prove value to both trainees and patients.

Disclosures

The authors have no conflicts of interest to disclose.

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